

1           1. An isolated nucleic acid molecule encoding a  
2 chondrosarcoma associated (CSA) polypeptide.

1           2. The nucleic acid molecule of claim 1, wherein  
2 said polypeptide is human CSA-1.

1           3. The nucleic acid molecule of claim 1, wherein  
2 said nucleic acid molecule comprises the nucleotide sequence  
3 of SEQ ID NO:1 or a degenerate variant thereof.

1           4. The nucleic acid molecule of claim 1, wherein  
2 said nucleic acid molecule comprises a nucleotide sequence  
3 encoding a polypeptide having a sequence that is at least  
4 80% identical to the sequence of SEQ ID NO:2.

1           5. An isolated nucleic acid molecule comprising a  
2 strand which hybridizes at high stringency to a DNA having  
3 the sequence of SEQ ID NO:1, or the complement thereof.

1           6. The nucleic acid molecule of claim 1, wherein  
2 said nucleic acid molecule is operably linked to regulatory  
3 sequences for expression of said polypeptide, said  
4 regulatory sequences comprising a promoter.

1           7. A substantially pure CSA polypeptide.

1           8. The polypeptide of claim 7, wherein said  
2 polypeptide is a human CSA-1 polypeptide.

1           9. The polypeptide of claim 8, said polypeptide  
2 comprising an amino acid sequence that is at least 50%  
3 identical to the amino acid sequence of SEQ ID NO:2.

1           10. The polypeptide of claim 9, wherein said  
2 polypeptide comprises the amino acid sequence of SEQ ID  
3 NO:2.

1           11. A cell comprising the nucleic acid molecule of  
2 claim 1.

1           12. A method of making a CSA polypeptide,  
2 comprising (a) providing the cell of claim 11, and  
3 (b) culturing it under conditions permitting expression of  
4 said nucleic acid molecule.

1           13. A method for diagnosing the presence of a  
2 chondrosarcoma cell in a tissue sample, comprising measuring  
3 expression of a *csa* gene in said tissue sample and a control  
4 sample, wherein an increase in expression of said *csa* gene  
5 in said tissue sample compared to said control sample  
6 indicates that said tissue sample contains a chondrosarcoma  
7 cell.

1           14. The method of claim 13, wherein said *csa* gene  
2 encodes a human CSA-1 polypeptide.

1           15. A method of grading a chondrosarcoma tumor in a  
2 test sample of patient-derived tissue, comprising  
3 determining the level of *csa-1* gene expression in said test  
4 sample, and comparing it to the level of *csa-1* gene  
5 expression in a control sample, wherein the level of  
6 expression in said test sample compared to said control  
7 sample is directly proportional to the grade of said tumor.

1           16. A method for detecting chondrosarcoma in a  
2 patient, comprising:

3           (a) administering to a patient a diagnostically  
4 effective amount of a detectably labeled CSA-1-specific  
5 binding species, and

6           (b) determining whether said species  
7 specifically binds to cartilage cells of the patient, said  
8 binding being an indication of the presence of  
9 chondrosarcoma in the patient.

1           17. The method of claim 16, wherein the level of  
2 said binding correlates with the grade of said  
3 chondrosarcoma.

1           18. A method of detecting progressive  
2 chondrosarcoma in a patient, comprising

3           (a) successively administering to a patient  
4 suspected of having said chondrosarcoma a diagnostically  
5 effective amount of a detectably labeled CSA-1-specific  
6 binding species selected from the group consisting of  
7 antibodies, antibody fragments, and non-antibody CSA-1  
8 binding compounds, and

9           (b) comparing the amount of said species that  
10 binds to cartilage cells of the patient in successive  
11 administrations to detect an increase of binding of said  
12 binding species over time, wherein said increase is an  
13 indication of progressive chondrosarcoma in said patient.

1           19. A method of screening a candidate compound to  
2 identify a compound capable of inhibiting expression of a  
3 CSA polypeptide, comprising

4               (a) providing a chondrosarcoma cell expressing  
5 a CSA polypeptide;

6               (b) contacting said cell with said candidate  
7 compound; and

8               (c) determining the amount of expression of  
9 said CSA polypeptide by said cell, wherein a decrease in  
10 said amount in the presence of said candidate compound  
11 compared to the amount in the absence of said candidate  
12 compound indicates that said candidate compound inhibits  
13 expression of said CSA polypeptide.

1           20. The method of claim 19, wherein said CSA  
2 polypeptide is human CSA-1.